Electricity on the Farm

A MONTHLY MAGAZINE FOR THE UP-TO-DATE RURAL FAMILY

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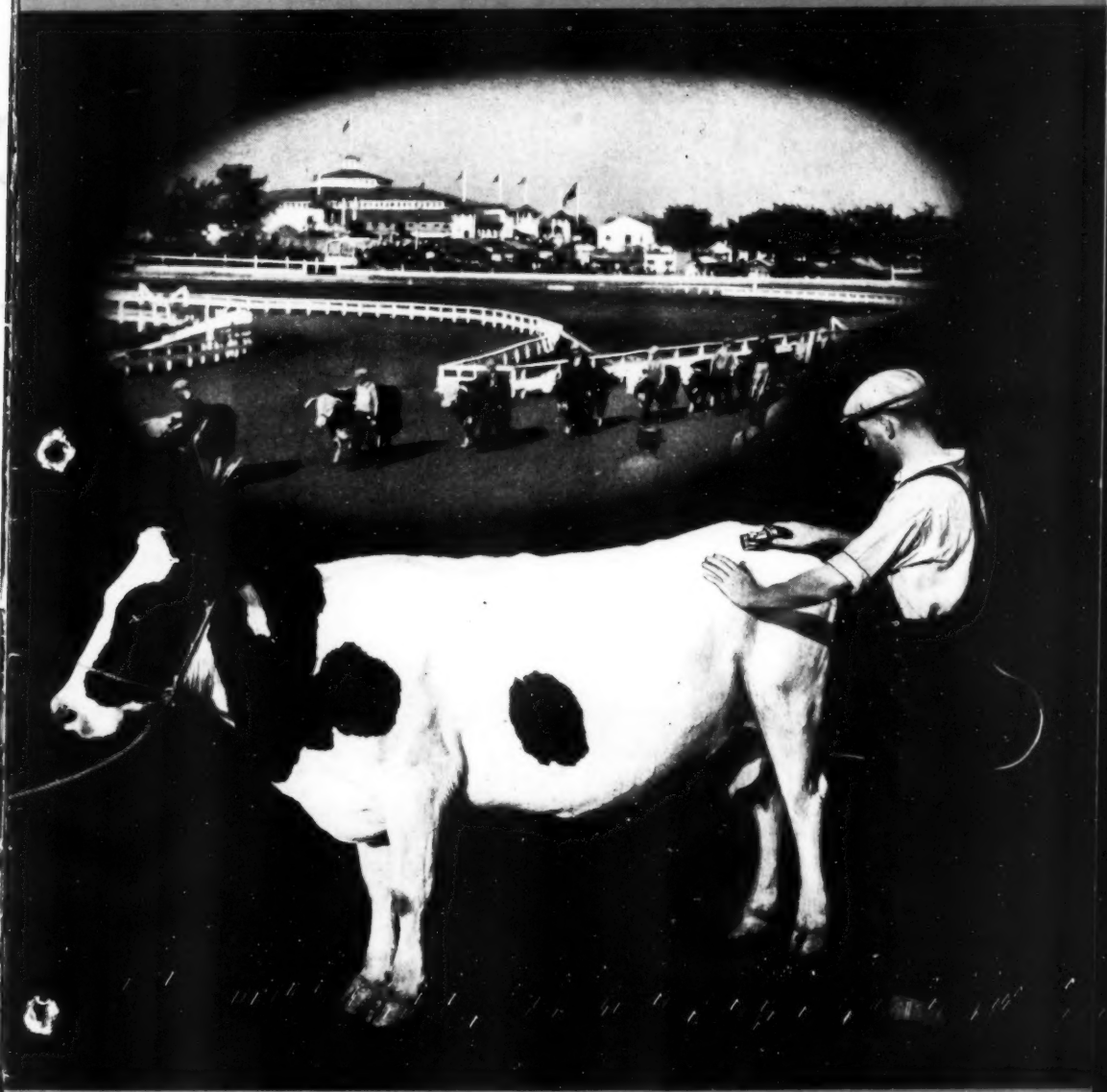

What is your title for this picture?

10 Cash awards will be given for the best.

(*See inside back cover for details*)

SEPTEMBER
1935

New "Miracle Cookery" Makes Your Cooking Results Certain

SCIENCE DISCOVERS

THE CHIEF REASON FOR COOKING FAILURES

By FRANCES WEEDMAN

Let's solve this eternal kitchen mystery, once and for all. Today you followed faithfully the same recipe that last week brought forth, we'll say, the perfect cake. Yet today's cake, alas, is merely cause for dismay.

Take heart! For the world's surest detective has been working on the case. Science has sifted the cause of cooking failures, and found that it is not necessarily the ingredients you use. Far more often it is the lack of *absolute control over cooking temperatures and oven moisture!*

And, of course, Science has found a way to confound this villain of the kitchen. Today we have "Miracle Cookery." The controlled heat of "Electric Embers" assures *exactly* the temperatures you need, and *maintains* them throughout.

The oven, unlike those of other types of ranges, is *draftless.* There are no hot waves of air to rob the oven of the moisture it needs.

Even the glowing *surface* "Electric Embers" of Hi-speed Calrod cooking units maintain precisely the degree of heat needed for each food you cook. There is no guesswork. And, best of all, the heat is *concentrated* on the bottom of the pot—not diffused about the kitchen.

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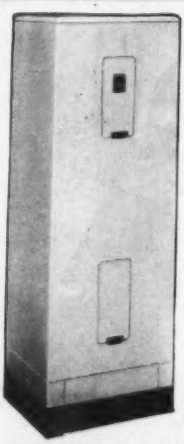
Do investigate Hotpoint Electric Ranges at your own electric company. See for yourself how cooking failures are checkmated — how "absent cookery" simplifies culinary problems — and how *easy* it is to bring "Miracle Cookery" to your kitchen. A unique budget system allows you many months to pay.



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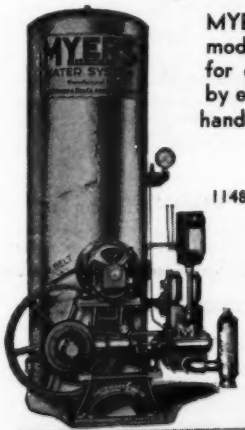

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September, 1935

Electricity on the Farm

Vol. 8, No. 9

EDITORIAL

"Comfortable kitchens in summer" might well be the battle cry of farm women today, for it is not a difficult matter to make the kitchen one of the most comfortable rooms of the house, even in the warmest weather.

Electric cooking throws off practically no heat to the room, it does not soil the kitchen ceiling or walls. An exhaust fan, mounted in the wall or above a window, will quickly remove any steam, should such be produced by tea-kettle or cooking utensil.

And other modern kitchen equipment, such as refrigerators, cabinets and tables, with enameled tops, contribute to the freshness and coolness of this room.

Coupled with its labor saving abilities, electricity as an efficient, clean heat producing medium is making life for the womenfolk on the farm not only easier, but more enjoyable as well.

THE PUBLISHERS.

IN THIS ISSUE

Electric Service Around Dairy Farms

BY R. U. BLASINGAME

Electric service around dairy farms can stabilize the quality of milk produced, reduce labor requirements, and make dairying more profitable. Such claims are not extravagant, but can best be proven by facts of specific cases which the author outlines on page 7.

Fruit and Vegetable Drier

BY HOBART BERESFORD

Prepare for a rainy day by preserving that portion of your fruit and vegetable crop which you have been unable to dispose of. The simplicity of construction and operation of this electrified unit make it an asset to the farm family. Construction and operation details will be found on page 10.

Kitchens You Live In—Part 2

BY ADA BESSIE SWANN

The second of two articles designed as an aid to the farm housewife in modernizing her kitchen. In this installment the author suggests, on page 12, how such a plan can be carried out as the household budget permits.

Clean Clothes for Nancy

BY VERA B. MEACHAM

"Clean clothes for Nancy" depend on a clean washing machine properly operated as directed by the manufacturer, said Sarah to the author of this article. On page 14 she tells why her washer is clean and bright after eight years of faithful service.

Miscellaneous Short Articles

Give Chicks a Good Start, page 15; First Class Installation the Cheapest, page 16; Cow Clipping Time is Here, page 17; Taking the Backache Out of Pumping, page 18.

Regular Monthly Features

Electrical Housekeeping, page 19; On the Air, page 22; Questions and Answers, page 24; What's New, page 26.

Issued Monthly by

CASE-SHEPPERD-MANN PUBLISHING CORP.

Editorial-Executive Offices: 24 West 40th Street, New York

KARL M. MANN, *President* — I. H. CASE, *Vice-Pres. and Gen'l Mgr.*

FRED SHEPPERD, *Editorial Director* — JESSE H. NEAL, *Vice-President*

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CHICAGO: 6 No. Michigan Ave.—W. S. CLEVENGER, Western Manager; L. M. ROCHE, Western Representative

SAN FRANCISCO: 444 Market St., Room 305—C. H. WOOLLEY

Subscription price, 75 cents per year; single copies, 10 cents; Special Bulk Rates on Application

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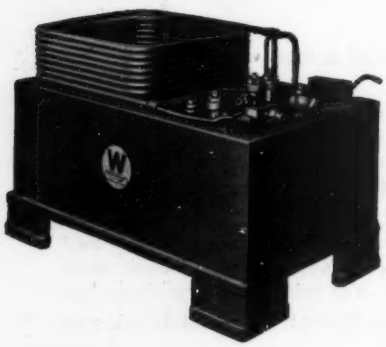

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Westinghouse REFRIGERATION

ELECTRIC SERVICE AROUND DAIRY FARMS

By R. U. BLASINGAME

The author here presents facts which are quite convincing as to the value of electricity on dairy farms.

IT is not the purpose of this discussion to make extravagant claims as to how electric light, heat and power might be employed to advantage on dairy farms. Rather to point out definite cases which are generally typical where high line current is actually being used on dairy farms to stabilize the quality of the milk produced, reduce the labor requirements and make dairy farming generally more satisfactory and profitable than by the old methods. The following citations serve to illustrate these points.

Mr. Frank Bergey, Telford, Penna., R.D., has a small dairy herd of a dozen cows from which he produces 120 quarts of quality milk daily. Mr. Bergey operates a general farm and is not interested in enlarging his dairy operations to the point where he would have to employ outside help. He uses an electric water heater and an electric sterilizer and by their use has eliminated the fire hazard of wood, coal or oil stoves. The thermostats on these two pieces of equipment feed in the heat as it is needed and cut off the current when the required temperatures are reached. These are important considerations when one must go out on the milk route or to the field.

The water heater furnishes hot water for washing bottles and utensils and the sterilizer stops the growth of any bacteria which might have been left in the washing process. The sterilizer is operated twice daily, once for 125 quart bottles and 10 pints, then again to sterilize 4 milk pails, one 10-gallon milk can, 1 strainer and the surface cooler. Thus far no dairy inspector has been able to find any fault with the Bergey milk production program. I do not hope to convey the idea that the use of electricity is a substitute for cleanliness and good methods. It is only an aid and if used with intelligence and wisdom will pay a neat profit.

The Bergey home has a complete line of equipment such as: an electric sweeper, washer, iron, refrigerator, full set of kitchen equipment and an electric water system. Both house and barn are operated from one meter.

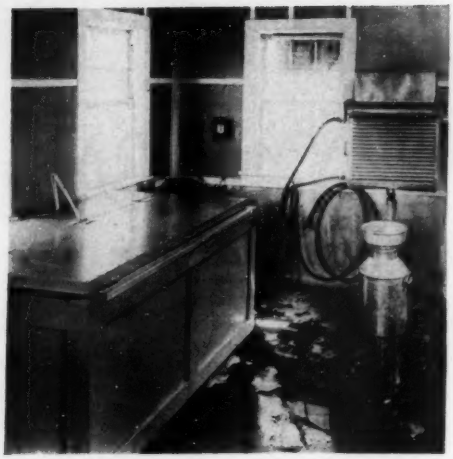
Electric Milker Saves Two Men

The W. F. Rosenberger dairy farm is completely electrified. Mr. Rosenberger has been using an electrically driven milking machine for the past seven years. "This machine," he says, "has been as satisfactory as one could wish for. I have not noticed any bad effects on the cows due to its use. It saves the work of two men. We can milk our 30 cows in 1¼ hours. It requires about 20 minutes to wash the outfit. We first rinse the milking machine parts in cold water, then in boiling water, and place the teat cups in a disinfectant. The repairs for the milker are about $12.00 per year." This equipment consists of three units connected to a pipe line, the pump is operated by a 1½ h.p. motor.

Mr. Rosenberger has two electric water systems; one shallow well outfit for the house and a deep well system supplies the milk house, drinking cups in the dairy barn, poultry and other live stock. Both of these water systems are of the automatic type, "requiring no attention," says the owner, "except to oil the motors now and then."

A milk refrigerator of the "walk-in" type is an important part of the Rosenberger dairy equipment. After the milk has been bottled, it is stored in the refrigerator until it is delivered. "No use washing and sterilizing everything," avers Mr. Rosenberger, "if milk is to be damaged by bacteria growth for

Ray Strouse, State College, Pa., R. D., refrigerating milk in an electric cooler installed in 1928. It has given excellent service during the eight years use.



The electric cooling tank and aerator help keep down the bacteria count on the Byrn-Coed farms.

lack of refrigeration. The entire profits of one's time and labor can be lost due to high temperature especially in summer. Ice would do the job but that would require additional help which is expensive and not always dependable. We have had electric current here for many years and we have been without service very seldom. The service improves as time goes on." The silos at this well known dairy farm are filled with a 10 h.p. electric motor.

Now Using Second Range

Electric service is so well established at this farm that Mrs. Rosenberger has been using her second electric range for two years. The first one was installed back about 1926. She says she cooks regularly for eleven people on the electric range and it is a very necessary part of the equipment of the dairy farm. The men can go and come to and from their work at the barn and field without giving a thought to fuel, ashes, and burned out smoke pipes.

Have Many Electrical Appliances

The day I visited this farm, Mrs. Rosenberger and her daughter were both ironing with electric irons. They have a mangle, washing machine, electric water heater, even an electric brooder and about every conceivable piece of electric equipment which has proved profitable on a dairy farm and in the home. Even though the electric bill at the Rosenberger farm ranges from $25.00 to $30.00 per month, "it is worth all it costs," the owner says with enthusiasm.

Electricity the Cheapest Help

It appears that the more completely a farm is electrified the better pleased the owner is and the least he has to say about the cost of the service. This point of view is well exemplified by Mr. and Mrs. H. C. Rishel, York, Pa., R.D. 6. One cannot divorce the electric operations in the home from those of the barn, especially if all of the operations are on one meter.

Mr. Rishel produces from about 11,000 pounds of milk per month in the winter to around 17,000 in the spring. He employs a dry type "walk-in" electric milk refrigerator. He cools the milk, as it is drawn, to 40° F. both morning and evening, over a surface cooler through which well water and brine are circulated. A separate meter shows that this refrigerator used from 44 kw-hrs. in January to 81 in April. The consumption in summer will be greater. Mr. Rishel has had the milk cooler for several years, in fact he built the cork insulated room himself and installed the motor and compressor. He says, "The milk business needs to be run by the owner and can be best done with

Milk cooling equipment at Brandywine Jersey Farms, West Chester, Pa., is described as "a good investment" by Mr. C. Albert Fox, owner of the farm.

the aid of electricity. If extra help is hired I use it mostly in the field or at the less discriminating jobs. Electricity is the cheapest, most reliable and satisfactory help I can hire."

Other than the milk refrigerator the Rishel family employ the following electrical apparatus: dish washer, house refrigerator, iron mangle, washing machine, range, sweeper, water pump, radio, oil burner, 1 h.p. utility motor, corn sheller, kitchen mixer and all the small electric appliances found in any home.

Lights an Aid to Cleanliness

"I feel that farmers often overlook the part that adequate electric lighting plays in dairying," Mr. Rishel declared with emphasis. "Too many dairymen are trying to produce milk in a dark dusty barn by the light of a lantern," he continued. Ample lighting aids to see how to eliminate dirt from the milk, thereby making the first step to quality production.

Grade "A" Shippers

So much for dairymen who have their own milk route. After all, the bulk of dairy production in the East is shipped as fluid milk to large dealers in the city. I made a careful study of several typical dairy farms in Blair County with Mr. C. L. East, who is head of the Rural Lines Department of Penn Central Light and Power Company, Altoona, Pa., and is also chairman of the Rural Sales Committee of the Pennsylvania Electric Association. One of these places was owned by Mr. Oliver Ritchey, Martinsburg, Pa., R. D. Mr. Ritchey milks on an average of 30 cows and ships about fourteen 10-gallon cans of milk a day to a receiving station at Martinsburg, which is owned by a well known milk company at Philadelphia. Of the evening milk, about 7 cans are cooled to 43° F. in an electric cooler. The vat is built of concrete and insulated with cork. In this way Mr. Ritchey is able to qualify as a grade A shipper the entire year by being able to meet the requirements of "less than 50° F," during the summer months.

The Ritchey dairy barn is equipped with drinking bowls which are supplied by an electrically driven water system. An electric range, and a complete set of electric household equipment operating through one meter brings Mr. Ritchey's consumption to an average of about 200 k.w. hours per month. This man has used a milking machine with an engine which is worn out. He is calculating now on switching over to electric drive.

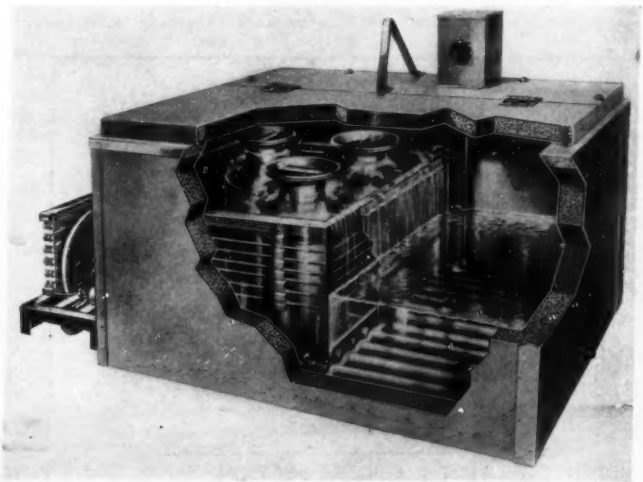
Premium for Low Bacteria Count

Another grade "A" milk shipper visited was Mr. Roy Baumgardner, Martinsburg, Pa., R.D. He has about the same set-up as that of the Ritchey place only the herd is somewhat smaller. These two men receive a premium the year round on the milk they ship. This premium is based largely upon low bacteria count. This in turn is obtained by good, clean methods and temperature control of the milk below the point where bacteria growth takes place.

Mr. East estimates that 75 percent of the 1700 farmers in the Penn Central territory are in the dairy business to some degree. He also believes that around 20 percent of the grade "A" shippers have electric milk coolers all of which have been purchased during the depression.

Temperature Control

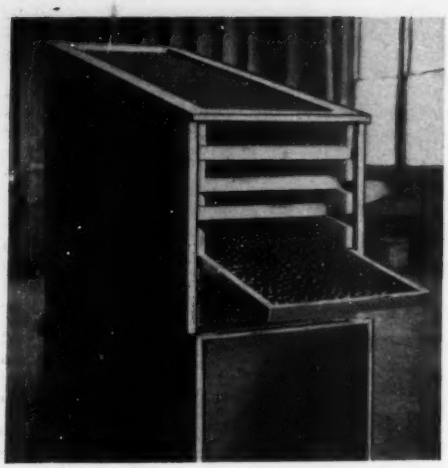
It appears from these studies out on dairy farms that electricity is employed largely to: (1) control temperature to destroy bacteria by high temperature or sterilization and by the use of low temperature to prevent the growth of bacteria which have found their way in the milk; (2) supply an abundance of water for the dairy herd, in as much as milk is 86 percent water, and water for cleaning the utensils and to flush out the dairy barn; (3) operation of milking machines; (4) to lighten the work of the household which releases members of the family in order that they may give their careful attention to the requirements necessary to produce quality milk; (5) and to light the barn in order that one may see how to eliminate dirt from the milk as it is being produced.



A portion of the outer wall of this milk cooler has been cut away to show the makeup of the inside of the unit. The refrigerating coils which surround the left half of the tank are controlled by a thermostat which maintains a constant temperature in the water. Water is kept in circulation by means of a pump, and if a can is removed, the pump quickly raises the level of the water to the necks of the cans. The motor is controlled by a time switch.

DRYING FRUITS AND VEGETABLES

By HOBART BERESFORD



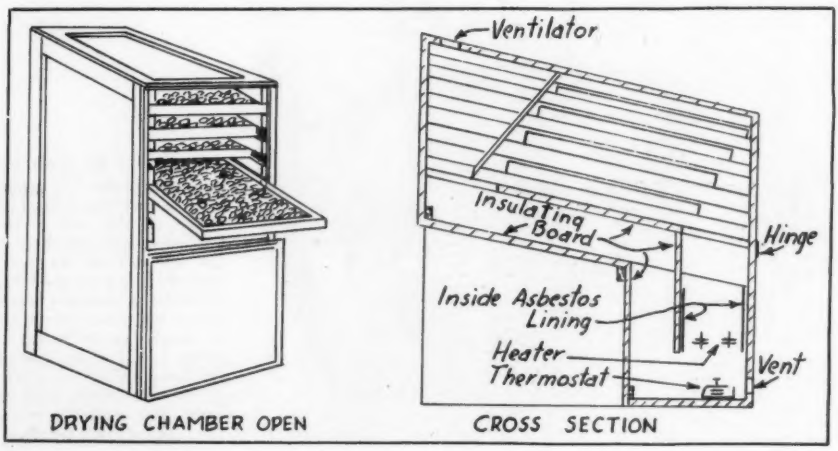
This is the electric fruit and vegetable drier developed by the National Rural Electric Project.

THIS fruit and vegetable drier, suited to the needs of the farm family and to operation by electric heat, is patterned after one developed by the National Rural Electric Project. The original plans have been modified to increase the capacity and simplify construction of the unit.

Work Layout

The sides of the drier are cut from a single 4x8-foot sheet of insulating board, such as nuwood or celotex. This 4x8-foot sheet of insulating board is cut in equal parts by a diagonal which produces two halves with a four-to-one slope, in order to secure a drying chamber with a sloping top.

The insulating board side panels are reinforced on the outside by 1x2-inch ribbons or strips held in place by box nails driven through the insulating board into the lumber. Corrugated nails are used at the corners of the panels where the 1x2-inch ribbons join. On the inside of the panels the slides for the trays are also made of 1x2-inch strips, as shown in the drawing. The baffle and the bottom of the drying chamber, air ducts and heater chamber are made of insulating board nailed on to the 1x6-inch boards, which are fastened to the inside of the side panels. Where the corners of the ends and top and bottom panels join, cross pieces of 1x2-inch strips are used to tie the drier together and to aid in making it air-tight. The width of the drier may be varied from 18 inches to two feet. The depth of the drying chamber should be about 18 inches, which is space enough to accommodate from four to five screened bottomed trays. The drying trays should be about 30 to 34 inches long and may be built



Line sketch and cross section of dry-unit, showing general makeup and location of heating unit and control equipment.

Materials and Use

Name	Amount	Dimensions	Material	Use
Insulation board	70 sq. ft.	two 4'x8' one 4'x1½'	Nuwood or Celotex	Side panels, ends, top, and bottom
Lumber	115 lin. ft.	1"x2"	Clear white pine	Panel reinforcing and trays
Lumber		1"x6"	Clear white pine	Side panels
Heater element	12 lin. ft. 2	500 watts each	Air or space type strip heater	Heat source
Nails	3 pounds	4d box		
Hinges	1 pair	2" butt		Tray door
Hooks and eyes	½ dozen	2"		Front panel and door fasteners
Screen	2½ yards	30"	Galvanized or copper	Tray bottoms
Sheet asbestos	6 sq. ft.	1/16" thick		Heater chamber lining

Drying Schedule

Product	Preparation	Drying time in hours	Per cent of original weight
Apples	Sliced, salt water 10 minutes, drained	15 to 20	15% to 20%
Apricots	Halves, salt water 10 minutes, drained	20 to 25	15% to 20%
Beans	Green, boiled 15 minutes, drained	10 to 15	14% to 20%
Berries	Whole	10 to 15	15% to 20%
Celery	Whole	10 to 15	8% to 10%
Corn	Boiled 15 minutes, cut, drained	10 to 15	25% to 30%
Cherries	Pitted, salt water 10 minutes, drained	25 to 30	15% to 20%
Peaches	Halves, salt water 10 minutes, drained	15 to 20	15% to 20%
Pears	Halves, salt water 10 minutes, drained	15 to 20	15% to 20%
Prunes	Whole, salt water 10 minutes, drained	25 to 30	25% to 30%

of one-inch material, using a ¼x1-inch strip to shield the screen or form a runner upon which the trays slide. Stops should be placed diagonally at the back of the tray slides, for the purpose of staggering the spacing of the trays in the drying chamber.

The front panel which forms the opening to the drying chamber and the heater chamber is hinged near the center and held in place by hooks and eyes. For loading and unloading the drying chamber the upper section of the panel is used as a door. If the heaters require inspection the entire front can easily be removed.

Thermostatic Control Desirable

The heating chamber should be lined with sheet asbestos as a precaution against possible danger from fire, though most of the air heating elements will not reach dangerous temperatures under these conditions. The heating element may be a wire coil designed for air heat, or the commercial strip heater. The capacity of the heater may vary from 660 watts to 1,000 watts depending upon the size of the drier. Ventilation is required in the form of an outlet at the highest point of the drying chamber and an inlet at the bottom of the heater chamber. The ventilation outlet should be adjustable, with between five and ten square inches of opening. The drying process is dependent upon the removal of the warmed, moist air from the drier. This condition makes it essential that adequate ventilation be provided. Most drying temperatures range from 120 to 165 degrees Fahrenheit. If a thermostat is available it will be found a convenient means of maintaining the desired temperature.

Operation

For some products it may be necessary to reverse the trays or change positions to facilitate drying. Fruit and vegetables may be prepared as for table use and the best results may be expected when a clean, ripe, carefully prepared product is used in the drier. To test fruit or vegetables for their condition of dryness, the per cent of moisture removed as determined by the loss of weight is a more accurate check than the feel or appearance of the product. This is due to the fact that when a dried product is at a high temperature it has a tendency to appear or feel leathery or sticky, but upon being removed from the drier and allowed to cool becomes hard and brittle. The drying schedule and reduction in percentage of weight required for satisfactory storage of dried products is found in the table above.

Dried products may be placed in cellophane bags. The number 1 size holds about one pound of the average material. Also, the manila paper bags will be found satisfactory for the storage and handling of various dried materials.

An electrically operated fruit and vegetable drier may be the means of saving for winter consumption a good quantity of produce which would otherwise go to waste. Tables showing materials required for construction, as well as a suggested drying schedule, are shown above.

Corner of farm kitchen showing wood burning range with hot water tank attached.

KITCHENS YOU LIVE IN

Second and Concluding Installment

By ADA BESSIE SWANN

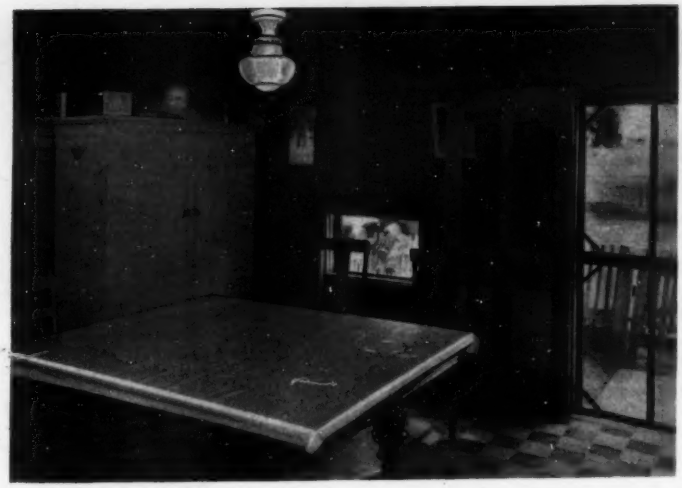
LAST month we found that kitchens we live in, to be convenient workshops as well as happy centers, must provide certain working areas for conveniently doing those tasks in the kitchen which are necessary to proper food preparation, serving and cleaning up.

Recently on a trip through the rural part of one of our eastern states, the photographs of a farm kitchen shown here were taken. The kitchen was large, bright with sunshine, but dull with dark wood walls and ceiling and with clumsy old fashioned equipment.

The fact that the kitchen was large and the

Hand pump over low, built-in trough, showing porcelain sink at right of pump in front of window. This arrangement necessitates much lifting of water pails.

Another corner of the kitchen showing large wooden cabinet for storing the outdoor clothing of members of the family.



equipment located on different side walls of the room, made it necessary for the farm woman to take hundreds of unnecessary steps each day in the preparation of three meals for her family.

Glancing at the photographs of this farm kitchen, which is typical of many found in the rural districts, one can easily see that little, in fact no attention has been given to the convenient arrangement of the equipment or to the type of equipment that will reduce the motions of household tasks.

The water used for dishwashing, cooking and laundering must be pumped by hand into a bucket, carried across the room to the water tank on the cook stove to be heated, then carried back to the sink or the laundry before it is available for use. This arrangement perhaps is a rare example, but even if the pump were convenient to the sink, the water would still have to be carried to the tank of the coal or wood range for heating.

The wood stove is used for all of the cooking and baking as well as for the heating of water, both during the summer and winter. The heat from the range is welcome during the cold weather, but must be unbearable in the summer.

We do not question the ability of the expert farm home-maker to obtain good results from this type of range, but we know she must constantly watch it and maintain the fire and then has the additional job of cleaning out ashes and polishing the stove.

That the owner of this farm kitchen hopes for and is looking forward to the time when she can modernize her kitchen with electricity, was defi-

(*Continued on page* 16)

The same kitchen with wall covered with washable linoleum, woodwork painted white and the arrangement of cabinets for storage and work spaces. A modern electric range and refrigerator are shown and a porcelain sink with cabinet base replaces the old pump and trough in the original kitchen.

CLEAN CLOTHES for NANCY

By VERA B. MEACHAM

IT was not a new washing machine by any means. I remember shopping for it with Sarah eight or ten years ago. But the green enamel finish was clean and bright. The cord was unfrayed and whole, and when I pushed the button, the motor started the machine smoothly and quietly.

I admired it openly.

"It certainly paid you to get a good washer, didn't it?" I asked. "Just think how well it has stood up."

"Of course it paid," said Sarah. "But you needn't think that washing machine kept its good looks just by chance, or its smooth running, either. I claim some responsibility, and you must give John some credit for being on hand regularly with an oil can and screw driver."

"I don't doubt it a bit," I said hastily. "I was just going to ask you to tell me what you do to it to keep it looking like that. Perhaps other people's washing machines wouldn't lose their good looks so early, and they'd keep on washing clothes longer, if folks weren't so apt to ignore them completely as soon as the clothes are out on the line."

Somewhat mollified, Sarah put down the sock she was darning and went over to the desk. Drawing a folder from one of the pigeonholes, she held it out toward me.

"This is the leaflet I got with that washer. I've kept it right where I could put my hands on it all these years. We still look at it now and again to check up on our oiling, but of course, we just about know those directions by heart. I figured that we would be taking the best care of that washing machine if we used it the way the manufacturer told us to.

"As far as I was concerned, I couldn't see that it made any difference how many clothes I tried to wash at once so long as they would go in the tub, but the manufacturer says eight pounds is a load, and I used to actually weigh the different loads till I got so I knew how much eight pounds of clothes was. You can't expect to get a good job, and you are going to get extra wear on the washer as well as on the clothes if you overload the machine. I'm careful to fill the tub just to the water line, too. Not that that makes any particular difference to the washer, but I've noticed it does to the wash."

"Yes," I agreed. "If you run in more water than you need, it will only splash about and interfere with the washing action. It is no wonder that your clothes always look so nice. You get the very best results from your machine, by following those directions exactly."

"I found that something else was important, too," Sarah went on. "I can't get clean clothes for Nancy without a clean washer, and a washing machine can't clean itself."

I nodded in agreement. "That is one of the very things I want you to tell me," I urged.

"I'm trying to tell you if don't hurry me so," Sarah protested. "To begin with, as soon as the last batch is rinsed, I drain off the dirty water. By the way, you might just say in your story that it isn't wise to drain off the water with some of the clothes left in the tub. If you do, you're apt to have some of the clothes sucked tight over the drain; you may even get some drawn into the pump. That'll stop it up in a hurry.

"After the rinse water drains out, I pour in fresh hot water, and run the machine for a few

Left: Run in hot water to rinse out the tub. Right: Leave the cover up a little.

minutes. After I drain this off, I take the agitator out and wipe it dry. Then I get all the lint from the drain pipe and strainer. I guess it is doubly important to keep the strainer clean in a washer that has a pump for emptying the tub. If you don't, the pump may get clogged up.

"When I leave the washer, I make sure that the drain faucet is open and I prop up the lid of the washer an inch or two so the air can circulate through it, and it won't get musty."

So simple a matter as keeping it clean was the open secret of Sarah's care, it seems.

In spite of regular care, the inside of the tub is apt to show a gradual discoloration. There are several ways to get this off without using harsh powders. Any fine scouring agent can be used safely.

The United States Department of Agriculture suggests hot vinegar for water coating and even for more obstinate stains. A paste of whiting and kerosene will take off that deposit left by hard water or washing soda on galvanized tubs. This paste, the writer of Farmer's Bulletin 1497, Methods and Equipment for Home Laundering, reminds us should be thoroughly rinsed out before the next washing. Dilute acids can be used with the same precaution. That greenish deposit sometimes found in copper tubs will come off with a paste of whiting and oxalic acid, or just plain soap suds and ammonia.

Be careful not to scratch the surface with your cleaning, for a roughened surface will always be harder to keep clean.

The wringer rolls need a little cleaning, too. Just a wiping off with a clean damp cloth. Always leave the wringer rolls with the pressure released.

Disconnect Machine Before Oiling

The only other care your washer needs is oiling. It is a pretty good rule *not* to oil or adjust the washer while the cord connects it to a convenience outlet. Probably it is always best to pull out the electric plug and coil up the cord where it will not get damp or rusty between washdays anyway. You must learn the kind and amount of oil your washer needs from the manufacturer's directions.

For the rest keep your washer in a clean dry place. If it has to stand in a dusty part of the basement, or the side porch, cover it up if you would help it keep its good looks.

Give Chicks A GOOD START

HIS constant aim to deliver the strongest and best baby chicks possible led E. W. LaBreck, owner of the Kluckalee Hatchery at Montesano, Washington, to construct an "electric nursery" for his newly hatched chicks.

It is a small room, at one end of the hatchery. Along the walls there are lath shelves that will hold 600 chicks in their shipping cartons and let the air circulate freely on all sides of the boxes.

To warm this room Mr. LaBreck uses an electric heater of 5 kilowatts total capacity. But the heater has three separate coils each controlled by its own switch and it is only occasionally that the full 5-kilowatts are turned on. A thermostat also controls this heater and keeps the temperature of the room at 72 degrees.

Then to supply the chicks with plenty of fresh air and keep an even temperature in the whole room, Mr. LaBreck runs an 8-inch fan. Near the floor in the wall behind the fan there is a hole 8 inches square and in the ceiling there are two more. All three have sliding doors to regulate the ventilation of the room.

"When we take the chicks from the incubators," says Mr. LaBreck, "we put them in this nursery. We keep them here under ideal conditions of temperature and fresh air until they are two or three days old. Then we cull out the weak ones and deliver only the best.

"We do everything we know how to do to produce and deliver good chicks, and the electric nursery, or something similar is necessary to do it."

The advantage of the electric method is that it is safe, sure, steady, and automatically controlled.

The thermostat controls the heater, and the fan circulates the heat.

FIRST CLASS INSTALLATION The Cheapest

WHEN having my buildings wired for electricity, I tried to have everything installed properly in the first place in order to avoid the necessity of making changes later on. It certainly is a great deal cheaper to have work done right the first time than to have to do it over again.

With this in mind, my buildings were wired in the following manner: all lines leading up to hay mows or up stairs have a red pilot light at the bottom of the stairway to show whether the lights above are on or off. Every line in the barn, as well, as in each room in the house, can be operated just inside the door, making it unnecessary to stumble around in the dark to locate a pull chain or switch. The lights on the porch are operated from the inside of the house. We have three-way switches both upstairs and down. There is a switch inside the house to light the garage and grounds, aside from the switch in the garage for this same purpose. We have a large light located on the top of a high pole which lights all the poultry houses and yards. This light can be operated from the house in case of prowlers. Another feature in the wiring system is a red pilot light on the outside of the barn which can be seen from the house in the event that I should leave the barn pump in operation. There is also a time clock for operating the lights in the laying houses which has a system of switches so that additional houses may be added to the circuit as lights are needed. The house is supplied with plenty of outlets.

While the installation of such a wiring system may seem to cost a little more at first, it is economical in the long run as the wiring job is complete and there is no need to tear out wires later on to make changes, thus doubling the original cost.

ROY T. SHEPARD,
R. R. No. 2, Batavia, N. Y.

Kitchens You Live In

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nitely indicated by a modern white porcelain electric refrigerator which she had installed in a cold pantry just beyond the kitchen. The location of the refrigerator required many additional steps at meal time both before and after, in the preparing of the meal and the putting away of foods.

In modernizing the kitchen pictured here we would suggest that the walls be lightened with some modern treatment because even the two lighting fixtures which are now in the room cause this homemaker to stand in her own light when working at the counter, table, or sink and, of course, the dark wood of the walls absorbs a major part of the light diffused from the two fixtures.

See What Could Be Done

The third picture shows what one could expect if this kitchen were modernized and electricity were used for lighting, cooking, refrigeration and if other electric appliances were energized from conveniently placed electric outlets.

Such a plan as is pictured need not be completed entirely at one time, but after the walls have been modernized as shown in the photograph and electric outlets provided for the use of equipment, the equipment itself can be purchased piece by piece as the budget allows.

In the picture of the remodeled kitchen, the measurements are the same as those of the original kitchen and the steps of modernization could be carried out as follows:

1. Treatment of walls and ceilings to give additional brightness to the room, using some of the modern wall coverings; a soft light colored paint with an enamel finish would be a great improvement.
2. Installation of sufficient electric outlets for using electrical equipment.
3. Installation of a modern cabinet sink with an an electric pump.
4. An electric storage water heater to provide a

(*Continued on page* 18)

Here is Mr. Shepard standing beside the garage on his farm. The light on the pole of the garage illuminates the poultry houses and yard and can be operated from the house in case of prowlers.

Cow Clipping Time Is Here

In a few weeks dairy farmers will be bringing the cows in out of the pastures at night due to the fall weather at hand. It will not be long until conditions will even necessitate keeping them stabled during many daylight hours. When this season approaches there is always the old problem of keeping the stabled milkers clean. Special precautions and care are about the only answer to keeping the grade of the milk up to summer levels and the bacteria count down.

One source of this difficulty is the dirt that drops off the cow's body. Even the most painstaking straining will only eliminate part of the dirt because it dissolves so quickly. That's one reason why the bacteria count frequently jumps up and the milk does not keep or grade so well.

Good Bedding Aids Cleanliness

Keeping cows well bedded with straw is a big help because most of the dirt is picked up when they lie down. They are more dry and comfortable too.

One way of meeting this situation that is growing in favor among farmers who keep cattle, is clipping. The time has come when good dairy practice requires it. There are some states which have listed it among their standard dairy requirements.

Clinging places for dirt and filth are removed by clipping, thus insuring a cleaner milk product.

Clipping the flanks, udders and underlines of the cows removes clinging places for dirt and filth. Thus it greatly reduces the amount of dirt that falls into the milk. With the long hair removed, the cow is easily cleaned by simply wiping with a damp cloth.

It will also be noticed that clipped cows come out with a healthier growth of hair, and they do not become itchy. A comfortable, healthy cow is the better producer every time.

A Study in Bugs

Professor: "Name the five most common bugs."
Student: "June, tumble, lady, bed, and hum."

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Taking the BACKACHE Out of PUMPING

By K. K. Vining

THE old saying that necessity is the mother of inventions should have the word "necessity" changed to "depression." Fred Miller, who lives on a farm, a mile south of Cedar Springs, Kent County, Michigan, wanted a pump jack and like many these days was shy the means to buy one. He did, however, have a hand power clipping outfit that was collecting dust and rust.

Above: Lack of available funds for new pumping equipment did not keep Fred Miller of Cedar Springs, Michigan, from putting electricity to work for this task.

Below: Modern electric water systems are inexpensive and dependable in operation. The unit below, installed on the farm of H. W. Fleck, near Mansfield, Ohio, supplies water for poultry live stock and family use.

Unused Equipment Utilized

Miller has a mechanical turn of mind and he put it to use. Cutting the standard of the clipping outfit off about a foot below the gear box, he fastened it in a 2x8 plank, 3 feet long. On the side where the shaft had been he attached a 10-inch pulley for which he paid $1.10. To the end of the crank he fastened a piece of oak, bolting the other end of it to the pump handle as shown in the picture. Seventy cents was spent for a belt. A ¼-H.P. motor was bolted to the other end of the plank. The belt was attached, the juice turned on and the outfit worked. The well is 44 feet deep and supplies water for 18 cows and 2 horses. Two of Mr. Millers neighbors, Ray Thompson and Herbert Wolf, have similar pumping outfits.

While a complete water system, or even a factory-made pump jack would give better service, still the home-made jack provides a big advance over hand operation of pumps.

Kitchens You Live In

(*Continued from page* 16)

constant supply of hot water for all purposes.

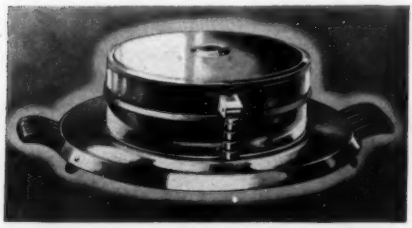
5. Removal of the electric refrigerator from the outside hall into the kitchen proper and placed at the left of the cabinet sink with the door of the refrigerator opening from left to right for convenience.
6. To the right of the sink a base cabinet with counter top will save many extra steps and a wall cabinet above will provide additional storage place.
7. A duplex convenience outlet above the counter for the use of an electric food mixer, percolator or toaster.
8. Removal of the wood burning stove and replacement by a modern electric range.
9. On either side of the range placement of cabinets both base with counter tops and wall cabinets for additional storage of pots, pans and supplies.
10. Installation of two duplex outlets for the use of electric table appliances.
11. Installation of an electric clock over range.
12. Installation of electric light fixture directly above range.
13. A large wardrobe which is in one corner of the large kitchen should be replaced at some future date by a modern metal or wooden cabinet in which the outdoor clothing of children or farm workers can be kept.
14. Installation of a ventilating fan in window or in wall over refrigerator.

The farm kitchen should be made as bright, as clean, as convenient to work in as the most up-to-date equipment can make it. If it is a well planned kitchen, modernized to use the conveniences and comforts of electric service, then the chores of the farm woman will be done as easily as those of the engineer and life on the farm will be more pleasant.

ELECTRICAL HOUSEKEEPING

Conducted by GAIL MEREDITH

WAFFLES Are Coming



The dial on top indicates the temperature. The wide tray base has convenient handles.

THERE are rows on rows of good looking waffle irons on the shelves of electric shops today. Most of them are finished in chromium plate that needs no polishing and stays forever shiny. Many have wide tray bases to catch those blobs of batter that drip off when your husband absent mindedly pours too much on the grids. Several have a narrow removable rim for that slighter overflow that is bound to come some time during the baking. The handles are black or white, are green or coral to suit your mood.

Some of these waffle irons have a heat indicator on the top with BAKE across a dial. When the tiny needle rests on those letters, you can pour in the batter and know your iron is just hot enough.

On many there are levers you can adjust to control the baking time so you will get a delicate light brown waffle, a medium waffle, or one more darkly done. Some of these waffle bakers have a light in front, a red light. Sometimes this light glows while the iron is on, bright during the baking, and dim when the waffle is done. On other irons when the waffle is ready to come out, the light goes out entirely and the current cuts off.

There is an attachment on this iron that lifts the waffle off the grids when you raise the cover.

On one new waffle baker there is a gadget that lifts the waffle right off the grids when you lift the cover at the signal that the waffle is ready.

Buying a good waffle iron is important, if you want good waffles. This was brought home to me just the other day when a friend of mine said she couldn't try out a new waffle recipe we were interested in because her waffle iron was no good. I looked at her in some surprise as she burst out:

"How was I to know it wasn't all right to buy a cheap waffle iron? I got it less than a year ago, and we can't use it at all. Andrew says I ought to have known better, but why should I?"

That was a hard one to answer, but I did mention, just mildly and unobtrusively, as it were, that it never pays to buy any cheap electrical equipment. For safety, for long life, for dependable service, you have to pay a reliable manufacturer to use good materials and sound design. If she had gone to a dependable local dealer, he would have sold her a waffle iron made by any one of a

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dozen thoroughly reliable manufacturers, and her iron would have gone on baking waffles as mine has done for more than a dozen years. Mine is out of style; it has no stop-and-go lights, it produces light or dark, soft or crispy waffles only as we peek at them in time, but it keeps right on baking perfectly marvelous waffles. I can see no reason why it shouldn't go on baking waffles for some one for a dozen years more. I'm hoping for a new model myself.

But having a good waffle iron is not all you need to have good waffles, using it right, and using a good recipe are essential, too.

When you get ready to bake your first batch of waffles in any new iron, plug it in and heat the grids. Then brush them lightly, both grids, with vegetable oil. A thin coating is all they need. You can put it on easily with one of those fine pastry brushes that come with some of the irons nowadays.

Adjust your levers, pour in the batter and close the lid. Some dealers recommend that you discard this first waffle because it may be grease soaked. You can see for yourself. All of the rest of them will bake without sticking if you did your greasing evenly. It should not be necessary to oil the grids again unless you leave the iron for several months unused. Then the grease may have evaporated. The grids are going to begin to discolor at once. Don't mind that. You can't prevent it, and it really seems to make them bake better. If after many, many waffles have gone over their nubs, the grids seem too heavily coated, you can clean them with a stiff wire brush. But keep water away from them. After a thorough scouring, you have to oil them again for the next baking.

If you haven't a good waffle recipe handy, here are two that were developed for one of the waffle iron manufacturers. Smothered with cream chicken, dabbed with honey, or flooded with maple syrup, — they do make a breakfast!

1¼ c flour
3 tsp. baking powder
½ tsp. salt
1 tbsp. sugar
2 eggs, whites beaten separately
1¼ c milk
4 tbsp. shortening (6, if butter)

Sift and mix dry ingredients together. Mix milk and egg yolks. Bring the two mixtures together and stir until batter is smooth. Then add shortening. Fold in stiffly beaten egg whites.

2 c flour
4 tsp. baking powder
½ tsp. salt
3 eggs, whites separate
1 tbsp. sugar
1½ c milk
5 tbsp. melted butter

Mix in the same way.

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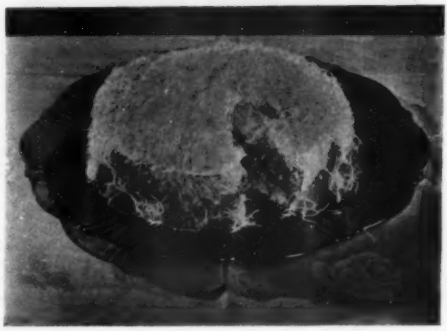

PRIZE Orange Coconut Cake

Give the family a real treat with this prize orange coconut cake. They'll all like it.

Cream:
¾ cup shortening
2 cups sugar

Blend in:
1½ teaspoons grated orange rind
2 egg yolks, well beaten

Sift together:
3¼ cups cake flour, which has been sifted once
4½ teaspoons baking powder
½ teaspoon salt

Add to first mixture alternately with:
½ cup orange juice
¾ cup water

Beat just enough to make batter smooth.

Blend in.
½ cup moist shredded coconut
4 egg whites, beaten stiff but not dry

Pour into three 9-inch cake pans, greased and

20 LAYING HENS pay for a KitchenAid

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floured. Bake 30 minutes in moderate oven (350°F.).

Orange Filling

Mix smooth in double boiler:

2 tablespoons flour — 1 cup sugar
4 tablespoons cornstarch — ½ teaspoon salt
4 egg yolks, well beaten

Add slowly the following, heated to boiling point.

Stir constantly while adding:

3 tablespoons lemon juice — ½ cup orange juice
¼ cup water

Add:

2 teaspoons butter — Grated rind 1 orange

Cook over boiling water, stirring occasionally until thick (about 20 minutes). Cool. Spread between layers of cake. Cover with a white, boiled icing and sprinkle with ¾ cup moist coconut.

• • •

Use Your OVEN If You CAN

SEPTEMBER is still hot, and for many of us much of our canning is yet undone. For fruits and tomatoes, for pickled beets and ripe pimentos, processing in the oven is a cool and comfortable way of doing the canning.

Perhaps you think it strange that these can be canned safely in the even heat of a regulated oven while other vegetables and meat should be done in a pressure cooker.

It all goes back to those pestiferous bacteria that lunch on the foods we want ourselves. I know of no clearer statement of the reasons why we can as we do than that made by Dr. Louise Stanley, Chief, Bureau of Home Economics, in Farmer's Bulletin 1471. I hope you have it on your kitchen bookshelf. If you haven't, this is what she says:

"In killing bacteria by heat in canning, both the degree of temperature and the length of time it is applied must be considered. A very high temperature may produce a sterile product that will keep well, but this may be at too great a sacrifice of flavor and texture. Therefore the temperature applied should ordinarily be the lowest necessary to accomplish the desired result, varying with the kinds of bacteria, and with the acidity and other conditions of the juice. No growing or vegetative forms of bacteria will survive for any length of time at the temperature of boiling water, but the spore form is killed at boiling temperature only by long continued heating, especially if the fruit or vegetables being canned has juice that is nearly neutral or only very slightly acid. When the juices are acid, as in fruits and tomatoes, both the vegetative and spore forms of bacteria are killed more quickly at the temperature of boiling water. The bacteria that require long continued heating at boiling temperature may be killed more quickly at higher temperatures, such as are obtained in

a pressure cooker. The necessary time of heating varies with some organisms from 6 hours at boiling temperature to 30 minutes at 240 degrees, the temperature obtained by steam under 10 pounds pressure.

"The effectiveness of any given method of applying heat to kill bacteria is also influenced by the number present and the time necessary for the heat to reach every portion of the material being canned. This emphasizes the importance of thorough cleansing of the product before starting to can and the use of freshly gathered products free from decay.

"The bacteria causing botulism have been studied in order to find the temperature and conditions necessary for destroying them. They will not grow in salt solutions where the percentage is higher than 9%. They are destroyed at boiling temperature if the solution is sufficiently acid.

this teakettle is FAST

It brings 2 pints of water to a boil in less than 6 minutes (capacity when filled, 5 pints). It heats water with 40% *less electricity* than the open range unit—and as fast as gas. Plugs into any convenience outlet — or you can put it on any range unit like an ordinary teakettle, for DOUBLE QUICK heating. Gentle whistle signals to shut off current promptly when water boils. Quick and handy, day or night, in any room that is wired. *See your power company or electrical dealer.* If they cannot supply you, write direct to WEST BEND ALUMINUM CO., West Bend, Wis. Price with heavy rubber cord, $7.50 postpaid.

Speedmaster ELECTRIC TEA KETTLE

With non-acid vegetables and meats there is no assurance that they are killed at the temperature of boiling water unless the material is heated for as long as six hours. The heating time may be decreased very much if a higher temperature is used. This is the reason for the recommendation that meats and non-acid vegetables be canned under pressure."

And contrariwise, that is the reason why it is safe to can fruits and tomatoes in the oven where temperatures approximating 212 degrees can be reached.

"In oven canning," continues Miss Stanley, "the temperatures most often recommended range from 250 degrees to 275 degrees, Fahrenheit. With such external temperatures, the temperature of the contents of the jars approximates that obtained in the boiling water bath or steamer. The use of higher oven temperatures is not practical because of the greater loss of liquid through evaporation from the unsealed jars. It is necessary that the jars be only partially sealed when processed in an oven, as otherwise the seal would be broken by accumulated steam."

Miss Stanley further recommends that the food be packed hot in the jars.

"The advantages of the open kettle method and any possible advantage of the cold pack method of canning are combined in the hot pack. In this a short precooking of the material is substituted for the usually recommended blanching, and the cold dip is omitted. The theory that bacteria are killed by the shock of cold dipping has been proved to have no scientific basis. Precooking in this sense means heating the material in a mini-

(*Continued on page 26*)

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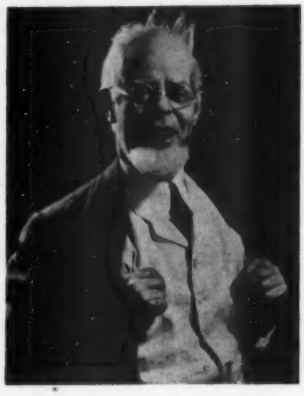
ON THE AIR

Conducted by JEROME J. HENRY

March of Time to Be Daily Series

THE "March of Time," one of radio's outstanding programs which has entertained and informed listeners through dramatic presentations of the news each week for several seasons, returned to the air last month as a five-day-a-week feature. This is the first time in radio history that daily dramatizations of the news have been presented. The program features a large cast of actors who have won wide favor for their ability to impersonate the leading figures of the day.



"You've beein hearing station EZRA come on the air lately." Here's Uncle Ezra himself, the station's announcer, program manager, engineer, janitor, musician, and chime ringer. His real name is Phil Barrett, an old time stage star.

The "March of Time" won immediate acclaim of both listeners and critics when it was first broadcast more than four years ago and since then has won many honors. Twice it has been named the most outstanding dramatic feature of radio broadcasting in the annual poll of radio editors of the United States and only last April the Women's National Radio Committee selected it as the air's foremost sponsored dramatic program. Its novel technique has also been utilized for the movies and "March of Time" pictures are being shown monthly all over the United States.

• • •

Alexander Woollcott Resumes Radio Series

ALEXANDER WOOLLCOTT, genial raconteur and master of whimsy, will return in the role of "The Town Crier" for his Sunday evening sessions of story-telling over a coast to coast CBS network beginning Sunday, October 6, at 7:00 p. m. Eastern Daylight Saving Time.

Long noted as an author, playwright and critic

the versatile Woollcott soared to radio prominence in 1930 when he first faced a microphone in the Columbia studios conducting a chatty literary col-

Alexander Woollcott, rings the Town Crier's bell which was presented to him by a group of his admirers. Woollcott has extended his series of radio programs this year with a new program of remarkable human interest stories.

umn. This year's series will again provide an abundant fare of yarns about books, poetry, the famous persons who are his companions, everyday happenings, and any other matters which strike the Wollcott fancy.

Woollcott will be heard over Columbia stations in Albany, Baltimore, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Des Moines, Detroit, Hartford, Kansas City, Louisville, New York, Omaha, Philadelphia, Pittsburgh, St. Louis, Syracuse, Washington, Denver, Minneapolis, Salt Lake City, Los Angeles, Portland, San Diego, San Francisco, Seattle, Spokane, Bakersfield, Fresno, Sacramento, Santa Barbara, and Stockton.

• • •

Radio Artists' Tailor's Tales

THE burden of clothes rests lightly on the shoulders of CBS male radio artists. Worshipful fans who fancy they would like to be in their favorite star's clothes should know that radio's Beau Brummels are a tape-measurer's holiday. In the tailor shop on the sixth floor of the building that houses the studios, the tailor tells tales occasionally about the tastes and fancies of the radio artists.

Freddie Rich is afflicted with coat button trouble. It happens invariably that he no sooner picks up a baton to whip his orchestra into action than pop, and it's another coat button and a hurry up job for the tailor. Freddie is also bothered with rainstorms. They often catch up with him before an important program and he goes into seclusion until the damage done to the press on his suit is righted.

Announcer Ted Jewett doesn't go to the trouble of establishing a screen between himself and the public. He takes his grief directly to the tailor, reads a newspaper on the premises and emerges a newly pressed man.

Most announcers and actors buy about four suits a year. Some buy many more. Most of them buy between September and July. One of the biggest jobs for the tailor came when he outfitted Johnny Green's 21 orchestra members with white double-breasted suits to wear during their broadcasts. With 21 to be fitted out in an assortment of stouts and longs and shorts and all of them cluttering up the shop at the same moment the tailor wished that he was back on a college campus selling suits to students who come in usually in pairs.

• • •

Sound Effects Man Makes Too Much Noise; Lands in Jail

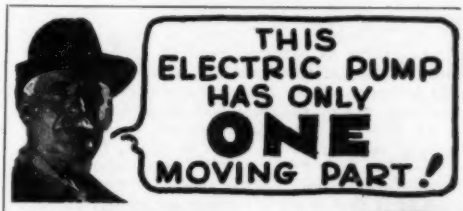
THOSE in radio, as in most things, like to recall the old days.

Here's an authentic tale dug out from the history of radio in Chicago.

It all happened about ten years ago. On with the yarn:

(A young man, six feet tall, fair complexion and blue eyes is walking along the pavement. He looks ahead, sees nothing, for he is lost in deep thought. He growls; he barks. His voice goes up and down the dog scale from one end to the other, from the piping "yip" of the Mexican Chihuahua to the deep baying of the coon hound. Frightened housewives call their children inside. They lock the doors. The young man notices not a thing. He starts on a long series of bull dog barks, changes to the sound of a beagle, and on with the lusty calls of a hunting pack on a hot chase. Happy with the result he smiles as frightened women along the way begin using their telephones. Presently a squad

(*Continued on page 26*)



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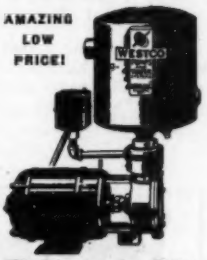

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Questions and Answers

Conducted by H. J. GALLAGHER

Motor Size for Pumping Water

Question: *Our well is 46 feet deep and we use a jack and ¾ H. P. gas engine; flat belt drive.*

How big an electric motor would it take to operate same? Would belt pulley on jack have to be changed to be used temporary and motor type to be applied to deep well head later?

Answer: Your present power requirements on a 45 foot well and pump jack are only ¾ H. P. Your future power requirements when you convert the present system into a pressure system will be ½ H. P. The type of motor to purchase for pumping operation is the *repulsion-induction* type.

If the gas engine runs, as most of them do, at about 600 R. P. M., the pulley on the electric motor should be 1/3 the diameter of the one now on the gas engine. The same flat belt can be used with a flat fiber pulley on the motor. A V motor pulley and ½ inch V belt will give better results with the flat pulley on the jack than with a flat belt, and the price of a V motor pulley and ½ inch V belt will be about the same as one flat fiber pulley for the motor.

Circuit Breaker Replaces Fuse

Question: *On page 21 of your May issue is shown a cut of "Circuit Breaker." Does it need one for each circuit or are all circuits connected to the one "breaker." Our house is wired with the 3-wire system on entering building. All wiring in house is No. 12 wire and divided into 3 circuits. The basement circuit takes care of 3 small motors, automatic water system under 20-40-lb. pressure, ½ H. P.; also same kind 1/6 H. P. and power washing machine ¼ H. P. The ½ H. P. used to be on the first floor circuit but it made lamps flicker every time motor pumped water. My thought is that if all 3 circuits are connected to 1 circuit breaker, flicker of lights return again.*

Answer: The circuit breaker shown on page 20, May issue of ELECTRICITY ON THE FARM, is a protective device to be used in place of a fuse for each circuit. One circuit breaker for two or more circuits would be of no value. To permit three No. 12 wire circuits to operate at safe load at the same time, one circuit breaker would have to have a capacity of 60 amperes. If only one of the circuits were in use, it could be loaded to three times its safe carrying capacity.

In modern wiring the circuit breaker is gradually replacing the fuse. A fuse opens a circuit when the fusible link in the fuse melts. The fuse must then be replaced by a new one. When a circuit breaker functions, nothing melts or has to be replaced. A fuse blows instantly as its capacity is reached. A circuit breaker has a large momentary overload capacity that is of special value in motor operation. Circuit breakers can be purchased in practically any size desired.

The best way to eliminate lights flickering because of motor operation with 3 wire service is to connect the stationary ½ H. P. motors on 220 volts, the rest of the 110 volt motors on one side of the service and the lighting circuits on the opposite side of the service. This balances the load on the secondary service and is one of the main reasons why 3 wire services are used.

Low Voltage Plant and Battery Comparison

Question: *I am interested in a 32 volt electric plant driven by wind power.*

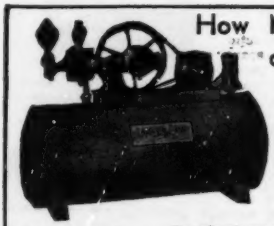
(1) *Is it possible to install a 32 volt, 250 watt (or ½ H. P.) series motor and use it as a generator?*

The purpose of a series motor is to generate current at a slow rate of speed, about 400 R. P. M. or up. The propeller blades are controlled so there will be no excessive speed to burn out the windings.

(2) *Give advantages and disadvantages of the Edison battery over the lead (acid type) battery.*

W. R.

Answer 1: A series wound motor cannot be used for charging a battery, as the voltage of the generator would increase rapidly as the current output increased, thus increasing the intensity of the field which in turn would increase the current output, until the load would either stall the driving unit or cause the generator to burn out. Either shunt wound or compound wound generators can be used with wind power for charging a storage battery, but for variable speed such as is obtained from a wind driven unit, a compound wound generator with the series winding opposing the shunt field winding, is most satisfactory. This type of generator will function like an automobile generator which operates at a variable speed and has a



How Many Gallons of Water Do You Need?

If you will write us and give us depth of your well and approximately how many gallons of water you require daily, we will tell you how much it will cost you to install a Uniflow Water System. You know all about the advantages of running water, but do you know that it is easy and inexpensive to get a guaranteed Uniflow Water System? Why not write us today . . . a postcard will do.

MILK COOLERS

Send for Bulletin describing Uniflow line of electric refrigerated milk coolers.

UNIFLOW MFG. CO.
Dept. E—Erie, Pa.

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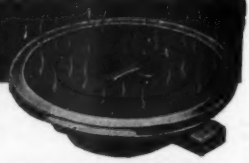
SUPER-SPEED ELECTRIC RANGE UNITS



What a difference they make in cooking speed!

You won't know your old electric range after it has been modernized by a set of these speedy units. They save hours in the kitchen and dollars in electric bills—and they'll fit your range. Ask your power company, or write us.

Edwin L. Wiegand Co., 7580 Thomas Blvd., Pittsburgh, Pa.

ASK YOUR POWER COMPANY for a FREE TRIAL

variable charging rate which increases with an increase of speed up to a predetermined rate. Any further increase in speed will cause a slight decrease instead of an increase in the charging rate.

The windings of the armature and field of any generator determine the speed at which the generator must be driven in order to generate electricity. Any change in the windings will alter the speed or voltage of the generator. It will be necessary to have a generator rewound in order to get one that will generate 250 watts at a speed as low as 400 R. P. M. Unfortunately, a generator to operate at low speeds must be larger and heavier than one which generates the same wattage at higher speeds.

Answer 2: The main advantages of the Edison-Nickel-Iron Alkaline storage battery over the Lead-Acid battery are:

1. It has a long life—many are in service after 20 years.
2. It cannot be damaged by overcharging.
3. It may be left standing in any state of charge without injury.
4. The electrolyte will not freeze.
5. The chemical action is completely reversible.

The main disadvantages are:

1. The voltage needed to charge an Edison battery is much higher than needed for lead-acid battery, which would be used for the same circuit. Lamps which would burn with normal brilliancy when the Edison battery is discharging, would burn out quickly if used when the battery is being charged.
2. The Edison battery will not discharge at a high rate as will a lead-acid battery, consequently, the Edison battery is not used to operate automobile starting motors.
3. The Edison battery requires a minimum charging rate of one ampere for each five ampere-hours of the battery rating. A trickle charge is a waste of energy.
4. The cost of an Edison battery is much higher than that of a lead-acid battery.

No Doubt About It

Teacher (having size in mind): "What's the difference between an elephant and a flea?"

Tommy: "Well, for one thing, an elephant can have fleas, but a flea can't have elephants."

"That librarian made a blunder."

"How's that?"

"I asked for Shakespeare's plays and now she's gone and sent me Shakespeare's works."

He: "I'm just temperamental."

She: "Yeah! 98 per cent temper and 2 per cent mental."

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STEWART Electric CLIPMASTER

Clipped cows give cleaner milk, better milk with lower bacteria count. Quickly cleaned by simply wiping with damp cloth. Good dairy practice requires cow clipping. Some states demand it. Clipmaster is the fastest, coolest, easiest-to-use clipper ever made. Smaller **EASY-GRIP** hand-piece only 2 inches thick contains **powerful** motor. Perfect balance. Air-cooled. Ball-bearing. Only $16.95 for 110 volts AC or DC. Other voltages $2.00 additional. Slightly higher West of Denver. At your dealer's or send $1.00. Pay balance on arrival. Send for FREE catalog of Stewart electric and hand-power Clipping and Shearing machines. Made and guaranteed by Chicago Flexible Shaft Co., 5524 Roosevelt Road, Chicago, Ill.

45 Years Making Quality Products.

The 50 Leaders!

Hundreds of practical and successful applications for electricity on the farm are available today. But the 50 listed below are so important that every progressive farmer should be well informed on each and every one. So start investigating today — picking first those that serve where help is needed most.

FOR THE HOUSEHOLD

Ranges (*see advt., Inside Front Cover, page 6*)—Refrigerators (*see advt., pages 6-24*)—Clothes Washers—Vacuum Cleaners—Ironing Machines—Dishwashers—Flat Irons—Food Preparing Machines (*see advt., page 20*)—Ice Cream Freezers—Sewing Machines—Table Cooking Appliances — Clocks — Range Replacement Units (*see advt., pages 6-24, Inside Front Cover*)—Floor Polishers—Electric Tea Kettles (*see advt., page 21*).

FOR WATER SUPPLY

Automatic Water Systems (*see advt., pages 3-5-17-19-23 and 24*)—Water Heaters (*see advt., Inside Front Cover, pages 6 and 21*)—Controls—Septic Tanks (*see advt., page 24*).

FOR THE DAIRY

Milking Machines—Milk Coolers (*see advt., pages 6 and 24*)—Cream Separators—Churns—Bottle Washers Dairy Sterilizers—Clipping and Grooming Machines (*see advt., page 25*).

FOR POULTRY

Incubators—Brooders—Time Switches—Drinking Fountain Warmers—Ultraviolet Light—Thermostats.

FOR REPAIR AND MAINTENANCE

Soldering Irons—Tool Grinders—Drills—Paint Sprayers —Woodworking Machinery—Motors.

MISCELLANEOUS

Feed Grinders—Ensilage Cutters—Corn Shellers—Hay Hoists — Feed Mixers — Stationary Spray Plants (*see advt., page 3*) — Burglar Alarms — Ventilators — Soil Heating Equipment—Insect Traps and Screens—Electric Fencing Units (*see advt., page 22*)—Radio Sets—Sheep Shearing (*see advt., page 25*)—Light for Stimulating Plant Growth—Floodlights—Bunch Tyer—Vegetable Washer—Motors—Electric Lawn Mowers.

Many of your questions can best be answered by our advertisers. Read the advertisements carefully. If you can't get the information needed through them, fill out the handy coupon below.

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Without cost to me, please have manufacturers send complete information on the following Electrically Operated Equipment which I am thinking of buying. .....

My name is .....

Address .....

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I get electricity from .....

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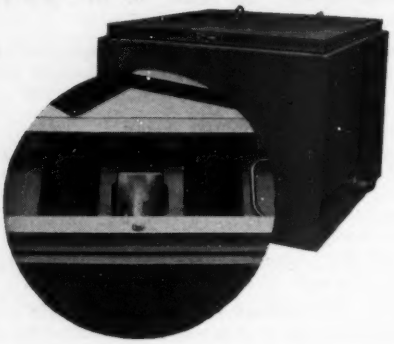
What's New

Reviewed by T. E. HIENTON

Names and addresses of manufacturers of the articles described in this column will gladly be furnished upon request. Address your requests to What's New Department, ELECTRICITY ON THE FARM, *24 West 40th Street, New York, N. Y.*

Electric Utility Cooler

Many farmers have increased their incomes by selling sweet cream or butter instead of sour cream with the aid of electric refrigeration. Others have established retail outlets for eggs and dressed poultry with increased revenue from such sales



after they had secured the storage facilities of an electric refrigerator.

A utility cooler which provides space for storing perishables has been recently offered by a manufacturer of insulated cabinets. This cooler is available in three sizes, having capacities respectively of 14.5, 17.5 and 25.5 cubic feet. Ice making capacities of these cabinets are listed at 25, 34 and 50 pounds respectively per day. The cooler has three inches of insulation with heavy galvanized iron both inside and outside. Aluminum paint is used to finish the outside. A brine tank is used in the cooler to keep it cold.

On the Air

(*Continued from page* 23)

car approaches and comes to a stop.)

First policeman: "Hey youse!"

Young man: "Grrrr! Woof! Woof!"

Second policeman: "Bats in his belfry. Hey!"

Young man: "Arf. Arf."

(The policemen look at each other knowingly, emerge from the car and seize the young man, one on each side. The young man comes out of his trance.)

Young man: "Say, what is this?"

First policeman: "It's all right, Buddy. Just come along quiet now."

Young man: "But I haven't done anything."

Second policeman: "We know you ain't—nothin' but barkin' and yippin' like a pack of hounds and scarin' all the kids off the street."

Young man: "Oh, that."

First policeman: "Yeah, that. Come along."

Young man: "I was just practicing my sound effects for the radio."

Second policeman: "I know, we'll take you some place where you can meet Napoleon."

Young man: "But I tell you I'm not crazy. Let me explain. You can't do this . . ."

(Young man, still arguing wildly, is dragged into squad car and driven away.)

Sidney Ellstrom is the young man. He is now heard on NBC stations in the role of Stephen Rogers in the Welcome Valley program.

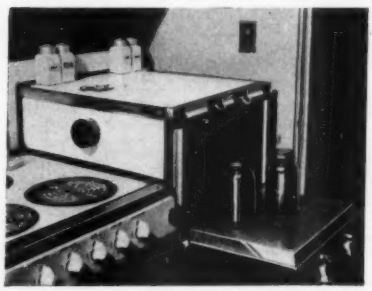
Ellstrom entered radio 11 years ago. The idea of perfecting a realistic dog bark intrigued him to such an extent that he used to practice while walking down the street. Several times he was threatened with arrest, and this once he was actually taken to the police station and held until he could prove his identity.

Use Your Oven If You Can

(*Continued from page* 22)

mum quantity of liquid until it boils, the material is thoroughly wilted and shrunken so as to facilitate packing, and any inclosed air is driven out. The material is then filled in the container boiling hot and processed immediately. In containers so packed the time required for the material to reach the temperature of the canner or oven is decreased in containers of all sizes."

When it comes to putting the jars into the oven, she says, "arrange the jars far enough apart to allow for the free circulation of air around them. Count the time as soon as the jars are placed in the oven and process for a period of 50 percent



longer than that used for the boiling water bath. At the end of the processing period remove from the oven and complete the seal on the jars. A shallow container placed in the bottom of the oven under the jars will catch any juices that may boil out of the jars during the processing period."

If you use it where you can, this oven heat, shut out of the kitchen, makes easier work of this end-of-the-season canning.

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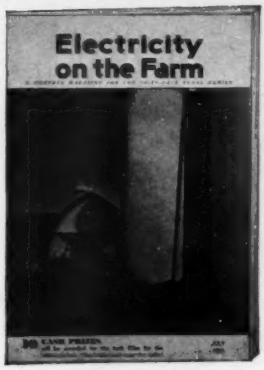
ELECTRIFIED FENCES reduce farm fencing costs 80%. Controllers for 110 and 32 volt current. 30 DAYS TRIAL. Write for catalogue. ONE-WIRE FENCE CO., B-11, Whitewater, Wis.

COVER TITLE CONTEST



JULY COVER

$20 First Prize for July Cover

"A job for a crew
Electrically done by two."

STANLEY BARNACK,
R.F.D. 1, Suffield, Conn.

Nine $2.00 Prizes for July

"Electricity—always ready and willing—
Takes the high cost out of silo filling."
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"Filling the silo, electric way,
No crew to feed, no hands to pay."
HARLEY KIRKHAM, R.F.D. 5, Springfield, Ohio

"Filling the silo the electric way,
Saves the Farmer ten men's pay."
MRS. JOHN SNIDER, Alderwood Manor, Wash.

"No crew to feed, no hands to pay,
Filling the silo the modern way."
ANNA CLARKE, Rest-a-while Farms, Watertown, Conn.

"Easy to start, easy to feed,
Plenty power, plenty speed."
MRS. BERTHA PAULSON, R.F.D. 3, Box 19, Grantsburg, Wis.

"Silo Filling work for a crew
Electrically done just by two."
MRS. JULIUS F. NEHMER, R.F.D. 5, Saginaw W.S., Mich.

"Filling silo electrical way,
The farmer profits, less help to pay."
ELZA W. GRAVER, R.F.D. 2, Elmore, Ohio

"Fill your silos the electric way,
No hired hands to feed or pay."
MRS. LAURA SYLER, R.F.D. 5, Canton, Ohio

"Silo filled electric way, less men to feed, less men to pay."
MRS. EARL WILBER, R.F.D. 1, Howes Cave, N. Y.

RULES
September Title Contest

Ten cash prizes will be awarded for the 10 best titles for the picture on the front cover of this magazine.

The first prize will be $20 cash, and nine second prizes of $2 in cash will be awarded.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

Titles should be brief — the shorter the better—and short slogans will be given preferences over rhymes.

All members of the farm family to whom this magazine was sent may submit titles, but each contestant may submit only one title.

Question "A" must be answered.

Entries must be sent to the Title Editor, ELECTRICITY ON THE FARM, 6 North Michigan Avenue, Chicago, Illinois, before October 1st.

Winning names and titles will be announced in the November issue.

Send your title on the coupon or make out a similar form on a plain sheet of paper or government postcard.

My title for the Front Cover picture on ELECTRICITY ON THE FARM for September is

.....

.....

(a) Are you producing whole milk or cream for the retail trade? .....

About how many pounds a month do you sell for this purpose? .....

My name is ..... ***R.F.D.*** .....

Post Office ..... ***County*** ..... ***State*** 9-35

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ASK YOUR POWER COMPANY

if you have questions about the wiring for your farm or home. They'll be glad to help you. The services of the publishers of this magazine are also yours to command. Address ELECTRICITY ON THE FARM, 24 West 40th Street, New York, or 6 No. Michigan Ave., Chicago.

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